

IN THE CLAIMS

1. (Previously presented) A solid oxide fuel cell comprising:

an anode including doped-ceria, wherein said doped-ceria is deposited by colloidal spray deposition;

an electrolyte including doped-ceria; and

a cathode including at least one cobalt iron based materials, wherein said fuel cell is capable of operating in the temperature range of 400-700°C.

2. (Previously presented) The fuel cell of Claim 1, wherein said anode comprises NiO and doped-ceria.

3. (Previously presented) The fuel cell of Claim 1, wherein said doped-ceria is doped with at least one dopants selected from the group consisting of samarium oxide, gadolinium oxide, yttria oxide, and lanthanide oxide.

4. (Previously presented) The fuel cell of Claim 1, wherein said anode, said electrolyte, and said cathode are porous.

5. Cancelled

6. (Previously presented) The fuel cell of Claim 1, wherein said electrolyte comprises material selected from the group consisting of doped-ceria, doped-zirconia with a thin layer of doped-ceria, and a mixture of doped-ceria and doped-zirconia.

7. (Previously presented) The fuel cell of Claim 1, wherein said cathode is selected from the group consisting of (La, Sr)(Co, Fe) O₃, and (La, Ca) (Co, Fe, Mn)O₃.

8-10. Cancelled

11. (Previously presented) The fuel cell of Claim 1, wherein the cathode comprises a cobalt, iron, manganese based material.

12. (Previously presented) A ceria-based solid oxide fuel cell comprising:

an anode containing doped-ceria, wherein said doped-ceria is deposited by colloidal spray deposition;

an electrolyte containing doped-ceria;

an electrode containing cobalt iron based materials; and

a fuel selected from the group consisting of hydrogen, methane, methanol, propane, butane and other hydrocarbons.

13. (Original) The fuel cell of Claim 12, operating in a temperature range of 400-700°C.

14. (Original) The fuel cell of Claim 12, wherein said fuel is composed of hydrogen or methane, and wherein the operating temperature is about 550°C.

15. (Previously presented) The fuel cell of Claim 12, wherein said fuel is hydrogen, and said fuel cell has a power output of up to 400mW/cm² at an operating temperature of 550°C.

16. (Previously presented) The fuel cell of Claim 12, wherein said fuel is methane, and said fuel cell has a power output of 320mW/cm² at an operating temperature of 500°C.

17. (Previously Amended) The fuel cell of Claim 12, wherein said anode comprises NiO and doped-ceria.

18. (Original) The fuel cell of Claim 17, wherein said electrolyte additionally includes doped-zirconia.

19. (Previously presented) The fuel cell of Claim 18, wherein said electrode is selected from the group consisting of (La, Sr) (Co, Fe)O₃ and (La, Ca) (Co, Fe, Mn) O₃.

20. (Original) The fuel cell of Claim 19, wherein said doped-ceria is doped with samarium oxide or gadolinium oxide.

Respectfully submitted,

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